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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 4
ITAAC Closure Notification on Completion of ITAAC 2.6.01.04e [Index Number 588]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.6.01.04e [Index Number 588]. This ITAAC verifies that: the Main AC Power System (ECS) provides the capability for distributing non-Class 1E ac power from onsite standby power system (ZOS) to specified nonsafety-related loads; the ECS provides two loss-of-voltage signals to the ZOS, one for each diesel-backed 6900 Vac switchgear bus; the ECS provides a reverse-power trip of the generator circuit breaker which is blocked for at least 15 seconds following a turbine trip; controls exist in the main control room (MCR) to cause the specified circuit breakers to perform the listed functions; and displays of the specified parameters can be retrieved in the MCR. The closure process for this ITAAC was based on the guidance described in NEI 08-01, "Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,

Jamie M. Coleman
Regulatory Affairs Director Vogtle 3 & 4Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.6.01.04e [Index Number 588]

JMC/CTW/sfr

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cc: Regional Administrator, Region II
 Director, Office of Nuclear Reactor Regulation (NRR)
 Director, Vogtle Project Office NRR
 Senior Resident Inspector – Vogtle 3 & 4

**Southern Nuclear Operating Company
ND-23-0575
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.6.01.04e [Index Number 588]**

ITAAC Statement

Design Commitment

- 4.a) The ECS provides the capability for distributing non-Class 1E ac power from onsite sources (ZOS) to nonsafety-related loads listed in Table 2.6.1-2.
- 4.e) The ECS provides two loss-of-voltage signals to the onsite standby power system (ZOS), one for each diesel-backed 6900 Vac switchgear bus.
- 4.f) The ECS provides a reverse-power trip of the generator circuit breaker which is blocked for at least 15 seconds following a turbine trip.
5. Controls exist in the MCR to cause the circuit breakers identified in Table 2.6.1-3 to perform the listed functions.
6. Displays of the parameters identified in Table 2.6.1-3 can be retrieved in the MCR.

Inspections, Tests, Analyses

Tests will be performed using a test signal to confirm that an electrical path exists for each selected load listed in Table 2.6.1-2 from an ECS-ES-1 or ECS-ES-2 bus. Each test may be a single test or a series of overlapping tests.

Tests on the as-built ECS system will be conducted by simulating a loss-of-voltage condition on each diesel-backed 6900 Vac switchgear bus.

Tests on the as-built ECS system will be conducted by simulating a turbine trip signal followed by a simulated reverse-power condition. The generator circuit breaker trip signal will be monitored.

Tests will be performed to verify that controls in the MCR can operate the circuit breakers identified in Table 2.6.1-3.

Inspection will be performed for retrievability of the displays identified in Table 2.6.1-3 in the MCR.

Acceptance Criteria

A test signal exists at the terminals of each selected load.

A loss-of-voltage signal is generated when the loss-of-voltage condition is simulated.

The generator circuit breaker trip signal does not occur until at least 15 seconds after the simulated turbine trip.

Controls in the MCR cause the circuit breakers identified in Table 2.6.1-3 to operate.

Displays identified in Table 2.6.1-3 can be retrieved in the MCR.

ITAAC Determination Basis

Testing and inspection were performed to verify that the Main AC Power System (ECS) performs the following:

- The ECS provides the capability for distributing non-Class 1E ac power from onsite sources (ZOS) to nonsafety-related loads listed in Combined License (COL) Table 2.6.1-2 (Attachment A).
- The ECS provides two loss-of-voltage signals to the onsite standby power system (ZOS), one for each diesel-backed 6900 Vac switchgear bus.
- The ECS provides a reverse-power trip of the generator circuit breaker which is blocked for at least 15 seconds following a turbine trip.
- Controls exist in the MCR to cause the circuit breakers identified in COL Table 2.6.1-3 (Attachment B) to perform the listed functions.
- Displays of the parameters identified in COL Table 2.6.1-3 (Attachment B) can be retrieved in the MCR.

A test signal exists at the terminals of each selected load.

Testing was performed as documented in Reference 1 to verify that electrical paths exist for each selected load listed in Combined License (COL) Table 2.6.1-2 (Attachment A) from the ECS-ES-1 6900 Vac Switchgear Bus 1 or the ECS-ES-2 6900 Vac Switchgear Bus 2. Reference 1 verified that power supply cables/wiring were installed and terminated from an ECS-ES-1 or ECS-ES-2 bus to the terminals for Day Tank Heater Pads A & B, Air-cooled Chiller 2 & 3 Piping Heat Trace, and Air-cooled Chiller 2 Control and Heat Trace (as identified in Attachment A) and documents continuity testing performed on each of the installed cables/wiring to verify that a test signal exists at the terminals. ECS-ES-1 and ECS-ES-2 were energized from the standby diesel generator by paralleling each diesel to its respective ES bus and loading the diesel to full load as documented in Reference 1. Work instructions listed in Reference 1 tested each remaining load listed in Attachment A and verified that each remaining load was de-energized, the power supply breaker(s) were then closed, and the load was verified to be energized. Pressurizer heaters (listed in Attachment A) were de-energized and during RCS pressure control testing, it was verified that the heaters were energized as documented in Reference 1. This constituted a series of overlapping tests to test all components. The combined test results confirmed that a test signal exists at the terminals of each selected load.

A loss-of-voltage signal is generated when the loss-of-voltage condition is simulated.

Testing was performed as documented in Reference 1 to verify that the ECS provides two loss-of-voltage signals to the onsite standby power system (ZOS), one for each diesel-backed 6900 Vac switchgear bus. The loss-of-voltage protection circuit for each switchgear bus and the diesel generator starting control circuitry were monitored. A loss-of-voltage condition was simulated at each diesel-backed 6900 Vac switchgear to initiate the loss-of voltage condition. The loss-of-voltage condition was verified to initiate switchgear supply breakers opening, switchgear load breakers opening and the starting of the respective standby generator. The completed test results confirmed a loss-of-voltage signal is generated when the loss of voltage condition is simulated on each switchgear bus.

The generator circuit breaker trip signal does not occur until at least 15 seconds after the simulated turbine trip.

Testing was performed as documented in Reference 1 with the turbine tripped. Test equipment was utilized to simulate a reverse power condition to the reverse power relay (RY1) and a timer was started. The timer was stopped when the reverse power relay output to the generator lockout relay (86SEQ1) was actuated, and the time was recorded. The generator circuit breaker trip circuit contacts were verified to close when the 86SEQ1 relay actuated. This testing was repeated for the RY2 and 86SEQ2 relays. The time delay for the Unit 4 RY1 relay was 16.99 sec and 16.99 sec for RY2. The test results confirmed that the generator circuit breaker trip signal does not occur until at least 15 seconds after the simulated turbine trip.

Controls in the MCR cause the circuit breakers identified in Table 2.6.1-3 to operate.

Testing was performed as documented in Reference 1 to verify controls in the MCR operate to cause the 6900 Vac Switchgear Bus 1 and 6900 Vac Switchgear Bus 2 circuit breakers listed in Combined License (COL) Table 2.6.1-3 (Attachment B) to operate. The control functions of each circuit breaker were tested and verified by inspection. The test results confirmed that controls in the MCR can operate the circuit breakers identified in Attachment B.

Displays identified in Table 2.6.1-3 can be retrieved in the MCR.

An inspection was performed as documented in Reference 1 for ECS and ZAS (Main Generator System) which visually confirmed that when each of the displays of parameters identified in Attachment B was summoned at an MCR workstation, the summoned plant parameter appeared on a display monitor at that MCR workstation.

Reference 1 is available for NRC inspection as part of Unit 4 ITAAC Completion Package (Reference 2).

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant findings associated with the ITAAC. The ITAAC completion review is documented in the ITAAC 2.6.01.04e Completion Package (Reference 2) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.6.01.04e was performed for VEGP Unit 4 and that the prescribed acceptance criteria were met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. SV4-ECS-ITR-800588, Rev 0, "Unit 4 ECS Non-1E Distribution, Trip Signals, Controls and Displays"
2. 2.6.01.04e-U4-CP-Rev0, "ITAAC Completion Package"

Attachment A
COL Appendix C Table 2.6.1-2

Load Description	Power Source
Load Center Transformers EK-11, EK-12, EK-13, EK-14	ZOS-MG-02A
ECS Panel Transformers	ZOS MG 02A
Diesel Oil Transfer Module Enclosure A Electric Unit Heater	ZOS-MG-02A
Diesel Oil Transfer Module Enclosure A Fan	ZOS-MG-02A
Class 1E Division A Regulating Transformer	ZOS-MG-02A
Class 1E Division C Regulating Transformer	ZOS-MG-02A
Diesel Generator Fuel Oil Transfer Pump A	ZOS-MG-02A
Diesel Generator Room A Building Standby Exhaust Fans 1A and 2A	ZOS-MG-02A
Diesel Generator Service Module A Air Handling Unit (AHU) 01A Fan	ZOS-MG-02A
Diesel Generator Fuel Oil Cooler Fan A	ZOS-MG-02A
Diesel Fuel Oil Transfer Module Unit Heater A	ZOS-MG-02A
Diesel Generator Jacket Water Radiator Fans A	ZOS-MG-02A
Diesel Generator AC/OC Radiator Fan A	ZOS-MG-02A
Diesel Generator Building Engine AHU MS 03A Fan	ZOS-MG-02A
Fuel Oil Day Tank Vault Exhaust Fan A	ZOS-MG-02A
Diesel Generator Lube Oil Cooling Motors A (Front/Rear)	ZOS-MG-02A
Diesel Generator Transformer A	ZOS-MG-02A
Day Tank Heater Pad A	ZOS-MG-02A
Startup Feedwater Pump A	ZOS-MG-02A
Service Water Pump A	ZOS-MG-02A
Service Water Cooling Tower Fan A	ZOS-MG-02A
MCR/Control Support Area (CSA) AHU A Supply and Return Fans	ZOS-MG-02A
Divisions A/C Class 1E Electrical Room AHU A Supply and Return Fans	ZOS-MG-02A
Divisions B/D Class 1E Electrical Room AHU D Supply and Return Fans	ZOS-MG-02A
Air-cooled Chiller Pump 2	ZOS-MG-02A

Attachment A (Cont.)
COL Appendix C Table 2.6.1-2

Component Cooling Water Pump A	ZOS-MG-02A
Air-cooled Chiller 2	ZOS-MG-02A
Air-cooled Chiller 2 Piping Heat Trace	ZOS-MG-02A
Air-cooled Chiller 2 Control and Heat Trace	ZOS-MG-02A
Chemical and Volume Control System (CVS) Makeup Pump A	ZOS-MG-02A
CVS Pump Room Unit Cooler Fan A	ZOS-MG-02A
Normal Residual Heat Removal System (RNS) Pump A	ZOS-MG-02A
RNS Pump Room Unit Cooler Fan A	ZOS-MG-02A
Equipment Room AHU Supply and Return Fans VXS-MA-01A/02A	ZOS-MG-02A
Switchgear Room A AHU Supply and Return Fans VXS-MA-05A/06A	ZOS-MG-02A
Non-1E Battery Charger EDS1-DC-1	ZOS-MG-02A
Non-1E Battery Room A Exhaust Fan	ZOS-MG-02A
Non-1E Battery Charger EDS3-DC-1	ZOS-MG-02A
Class 1E Division A Battery Charger 1 (24-hour)	ZOS-MG-02A
Class 1E Division C Battery Charger 1 (24-hour)	ZOS-MG-02A
Class 1E Division C Battery Charger 2 (72-hour)	ZOS-MG-02A
Divisions A/C Class 1E Battery Room Exhaust Fan A	ZOS-MG-02A
Divisions B/D Class 1E Battery Room Exhaust Fan D	ZOS-MG-02A
Supplemental Air Filtration Unit Fan A	ZOS-MG-02A
Backup Group 4A Pressurizer Heaters	ZOS-MG-02A
Spent Fuel Cooling Pump A	ZOS-MG-02A
Load Center Transformers EK-21, EK-22, EK-23, EK-24	ZOS-MG-02B
ECS Panel Transformers	ZOS-MG-02B
Diesel Oil Transfer Module Enclosure B Electric Unit Heater	ZOS-MG-02B
Diesel Oil Transfer Module Enclosure B Fan	ZOS-MG-02B
Class 1E Division B Regulating Transformer	ZOS-MG-02B
Class 1E Division D Regulating Transformer	ZOS-MG-02B
Diesel Generator Fuel Oil Transfer Pump B	ZOS-MG-02B
Diesel Generator Room B Building Standby Exhaust Fans 1B and 2B	ZOS-MG-02B

Attachment A (Cont.)
COL Appendix C Table 2.6.1-2

Diesel Generator Service Module B AHU 01B Fan	ZOS-MG-02B
Diesel Generator Fuel Oil Cooler Fan B	ZOS-MG-02B
Diesel Fuel Oil Transfer Module Unit Heater B	ZOS-MG-02B
Diesel Generator Jacket Water Radiator Fans B	ZOS-MG-02B
Diesel Generator AC/OC Radiator Fan B	ZOS-MG-02B
Diesel Generator Building Engine AHU MS 03B Fan	ZOS-MG-02B
Fuel Oil Day Tank Vault Exhaust Fan B	ZOS-MG-02B
Diesel Generator Lube Oil Cooling Motors B (Front/Rear)	ZOS-MG-02B
Diesel Generator Transformer B	ZOS-MG-02B
Day Tank Heater Pad B	ZOS-MG-02B
Startup Feedwater Pump B	ZOS-MG-02B
Service Water Pump B	ZOS-MG-02B
Service Water Cooling Tower Fan B	ZOS-MG-02B
MCR/CSA AHU B Supply and Return Fans	ZOS-MG-02B
Divisions B/D Class 1E Electrical Room AHU B Supply and Return Fans	ZOS-MG-02B
Divisions A/C Class 1E Electrical Room AHU C Supply and Return Fans	ZOS-MG-02B
Air-cooled Chiller Pump 3	ZOS-MG-02B
Component Cooling Water Pump B	ZOS-MG-02B
Air-cooled Chiller 3	ZOS-MG-02B
Air-cooled Chiller 3 Piping Heat Trace	ZOS-MG-02B
CVS Makeup Pump B	ZOS-MG-02B
CVS Pump Room Unit Cooler Fan B	ZOS-MG-02B
RNS Pump B	ZOS-MG-02B
RNS Pump Room Unit Cooler Fan B	ZOS-MG-02B
Equipment Room B AHU Supply and Return Fans VXS-MA-01B/02B	ZOS-MG-02B
Switchgear Room B AHU Supply and Return Fans VXS-MA-05B/06B	ZOS-MG-02B
Non-1E Battery Charger EDS2-DC-1	ZOS-MG-02B
Non-1E Battery Charger EDS4-DC-1	ZOS-MG-02B
Non-1E Battery Room B Exhaust Fan	ZOS-MG-02B

Attachment A (Cont.)
COL Appendix C Table 2.6.1-2

Class 1E Division B Battery Charger 1 (24-hour)	ZOS-MG-02B
Class 1E Division B Battery Charger 2 (72-hour)	ZOS-MG-02B
Class 1E Division D Battery Charger 1 (24-hour)	ZOS-MG-02B
Divisions B/D Class 1E Battery Room Exhaust Fan B	ZOS-MG-02B
Divisions A/C Class 1E Battery Room Exhaust Fan C	ZOS-MG-02B
Supplemental Air Filtration Unit Fan B	ZOS-MG-02B
Backup Group 4B Pressurizer Heaters	ZOS-MG-02B
Spent Fuel Cooling Pump B	ZOS-MG-02B

Attachment B
COL Appendix C Table 2.6.1-3

Equipment	Tag No.	Display	Control Function
6900 V Switchgear Bus 1	ECS-ES-1	Yes (Bus voltage, breaker position for all breakers on bus)	Yes (Breaker open/close)
6900 V Switchgear Bus 2	ECS-ES-2	Yes (Bus voltage, breaker position for all breakers on bus)	Yes (Breaker open/close)
Unit Auxiliary Transformer A	ZAS-ET-2A	Yes (Secondary Voltage)	No
Unit Auxiliary Transformer B	ZAS-ET-2B	Yes (Secondary Voltage)	No
Reserve Auxiliary Transformer A	ZAS-ET-4A	Yes (Secondary Voltage)	No
Reserve Auxiliary Transformer B	ZAS-ET-4B	Yes (Secondary Voltage)	No